

**Notice of Allowability**

Application No.

09/665,179

Applicant(s)

PAVLOVIC ET AL.

Examiner

Art Unit

Thomas K. Pham

2121

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 4/18/2005.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ The drawings filed on 14 July 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of the:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.  
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.  
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Laura Majerus on 5/26/2005.

The application has been amended as follows:

Please amend claims 2, 3, 5, 8, 9, 10, and 11 as follows ( [ ] indicates deletions and underlines indicate additions:

2. (Currently Amended) [A] The computer-implemented method of claim 1, wherein computing the colimits of the hereditary diagram of diagrams comprises [for determining a colimit of a hereditary diagram, comprising]:

extracting the shape colimit of the hereditary diagram stored in a memory, the hereditary diagram including a plurality of diagrams;

bringing each of the plurality of diagrams in the hereditary diagram to the shape of the shape colimit to yield a plurality of extended diagrams in the memory; and

taking the colimit of the extended diagrams.

3. (Currently Amended) The method of claim [2] 1, further comprising: receiving from the user an indication to find the colimit of the hereditary diagram.

5. (Currently Amended) The method of claim [2] 1, further comprising: displaying a representation of the colimit on a display device.

8. (Currently Amended) The method of claim [2] 1, wherein the hereditary diagram includes types of the diagram elements.

9. (Currently Amended) The method of claim [2] 1, wherein the hereditary diagram includes morphisms between the diagram elements.

10. (Currently Amended) The method of claim [2] 1, wherein the hereditary diagram is displayed with indicators on its arcs indicating what morphism is associated with the arcs.

11. (Currently Amended) The method of claim [2] 1, wherein the colimit of the hereditary diagram is displayed with indicators on its arcs indicating that ~~that~~ arcs constitute a cocone colimit.

*Reasons for Allowance*

2. Claims 1-12 are allowed.
3. The following is an examiner's statement of reasons for allowance:

While Specware ("Specware User's Guide", version 2.0.3) discloses a user interface for developing specifications for a system. Specware can be use to develop domain theories, develop code from specifications or develop specifications from code. However, Specware does not teach computing the colimits of the hereditary diagram of diagrams to compose larger software modules while preserving the decomposition of the involved components.

And Healy (article on "Colimits in Memory: Category Theory and Neural Systems") teaches co-limits in a particular category called Neural for deriving a neural system architecture using some general connectionist modeling principles. Healy does not teach automatically implementing a software specification or determining a colimit of the hereditary diagram of diagrams to compose a large software modules.

Neither of these references taken either alone or in combination discloses a method and device for automated software specification having all the claimed features of applicant's instant invention, specifically including: computing the colimits of the hereditary diagram of diagrams to compose larger software modules while preserving the decomposition of the involved components; and other limitations related to these features in combination with the remaining elements and features of the claimed invention. Also, there is no motivation to combine the Specware reference with the Healy reference to meet these limitations. It is for these reasons that applicant's invention defines over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday to Thursday from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Thomas Pham**  
*Patent Examiner*



May 27, 2005



**Anthony Knight**  
**Supervisory Patent Examiner**  
**Group 3600**